28. (Amended) The method of claim 27, including utilizing bit error rate to discriminate between noise and signals representing the reflected pulse.

REMARKS

Applicants thank the examiner for his careful review and examination of the specification and claims.

Objections as to Formalities

To address the examiner's objection to the specification, applicants have amended page 12 to include antecedent support for the *range measuring device* recited in the claims.

Applicants have also accepted the examiner's suggestions regarding informal objections relative to claims 1, 2, 4, 6-20, and 22. The amended claims include these suggestions.

Sec. 112, 1st Paragraph, Rejection of Claims 3 and 21-28

The examiner further contends that claims 3 and 21-28 fail to meet the requirements of 35 U.S.C. §112, first paragraph, in that the specification does not show the step of *radiating upon said object and receiving an echo*. To address this concern, applicants have amended claim 3 to recite *transmitting* a signal rather than *radiating* upon an object. A corresponding change was also made to claim 22. Further, applicants have changed the term "echo" to "reflected pulse." These changes comport with the present disclosure, as well as the disclosure of incorporated U.S. Application Serial No. 09/118,919 (now U.S. Pat. 6,239,741). To show actual support in applicants' earlier-filed '919 application, page 9 thereof is attached, in which relevant text is highlighted. It is

further noted that the page 9 excerpt, at lines 12-13, shows support for range measuring, i.e., distance measuring.

To provide clear antecedent in the specification for the *object detecting* method of claims 3 and 21-28, applicants have also amended page 48 of the present specification, as indicated above.

Sec. 112, 2nd Paragraph Rejection of Claim 7

Claim 7 has been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In reply, applicants have amended this claim to recite amplification of *one of said low-level waveform adaptive and said filtered low-level ultra-wideband signals*. Thus, amplification may be applied upon either of the two signal components.

Sec. 102(e) Rejection of Claims 2-3

The examiner maintains his rejection against claims 2-3 under §102(e) as being anticipated by McEwan '600. It is still applicants' position, however, that McEwan '600 does not disclose a waveform adapter as defined by the present or any of the parent application.

Despite an apparent disagreement whether the recited waveform adapter distinguishes over McEwan '600, applicants amend claims 2-3, without prejudice or disclaimer, to recite a filter or filtering to comport with at least one distinctive feature over McEwan '600, i.e., the filter or filtering limitation, it being understood that such limitation embraces devices and methods that limit, alter, or control the frequency or frequency range of the emitted UWB signal.

In view of the amendment to claims 2-3, the rejection is traversed.

Sec. 103(a) Rejection of Claims 14 and 21

Because claims 14 and 21 respectively depend from claims 2 and 3, the rejection asserted against them is traversed for reasons set forth above.

Conclusions

All claims should now be allowable.

Reconsideration is respectfully requested.

Respectfully submitted,
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REDLINE CLAIMS
Serial No. 09/251,297

1. (Twice Amended) A range measuring device comprising a waveform adaptive ultra-wideband transmitter and receiver, said device comprising:

a switched impulse generator to generate a low-level waveform adaptive ultra-wideband signal;

a filter that filters said low-level ultra-wideband signal to define a center frequency thereof and to produce a filtered low-level ultra-wideband signal;

an antenna responsive to said filter to radiate a signal representing said filtered low-level ultra-wideband signal; and

a receiver for receiving said radiated ultra-wideband signal.

2. (Twice Amended) A communication system utilizing an ultra-wideband transmitter, said system comprising:

a switched impulse generator including one of an impulse-excited oscillator and a UWB impulse generator to generate a low-level ~~[waveform-adaptive]~~ ultra-wideband signal;

a [waveform adapter] filter responsive to said impulse generator;

an antenna responsive to said waveform adapter to radiate a representation of said ultra-wideband signal; and

a receiver for receiving said radiated ultra-wideband signal.

3. (Twice Amended) A method for detecting an object utilizing ultra-wideband transmitting techniques, said method comprising:

generating a switched impulse, low-level ultra-wideband signal;

[waveform adapting] filtering said switched impulse, low-level ultra-wideband signal;

[radiating upon said object] transmitting a signal representing said waveform-adapted, ultra-wideband signal; and

receiving from said object [an echo] a reflected pulse of said [radiated,] waveform adapted, ultra-wideband signal thereby to detect said object.

4. (Twice Amended) A waveform adaptive ultra-wideband transmitter comprising:

a signal generator to generate a series of discrete low-level ultra-wideband signals having a selectable carrier frequency;

a waveform adapter responsive to said low-level ultra-wideband signals and including at least one of a bandpass filter, a mixer, a pulse shaper, and an attenuator that controls one of frequency, pulse shape, bandwidth, phase, multi-level amplitude, and multi-level attenuation of said low-level ultra-wideband signals, said waveform adapter controlling said low-level ultra-wideband [signal] signals on a dynamic, real-time basis; and

an antenna responsive to said waveform adapter to radiate ultra-wideband signals.

7. (Amended) The range measuring device as recited in claim 1, further comprising an amplifier that amplifies one of

said low-level waveform adaptive and said filtered low-level ultra-wideband [signal] signals.

14. (Amended) The communication system as recited in claim 2, wherein said receiver comprises a tunnel diode to detect said radiated ultra-wideband signals.

21. (Amended) The method of claim 3, further comprising the step of providing a tunnel diode to receive the [echo] reflected pulse.

22. (Amended) The method of claim 3, further comprising, prior to said [radiating] transmitting step, amplifying said waveform-adapted switched impulse, low-level ultra-wideband signal.

25. (Amended) The method of claim 3, further comprising, in the receiving step:

variably attenuating the [echo] reflected; and

detecting a signal produced by the [echo] reflected pulse after said variably attenuating.

26. (Amended) The method of claim 25, further including providing a tunnel diode to detect the [echo] reflected pulse.

27. (Amended) The method of claim 25, further including variably attenuating the [echo] reflected pulse to enable discrimination between noise and signals representing the echo.

28. (Amended) The method of claim 27, including utilizing bit error rate to discriminate between noise and signals representing the [echo] reflected pulse.